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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,603	01/22/2004	Yasuaki Nakamura	16869S-022710US	7261

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EXAMINER

LI, ZHUO H

ART UNIT PAPER NUMBER

2189

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/763,603

Applicant(s)

NAKAMURA ET AL.

Examiner

Zhuo H Li

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office action is in response to the amendment filed on 12/16/2004.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 2-8 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent No. 6,754,792. Although the conflicting claims are not identical, they are not patentably distinct from each other because all claimed limitations, i.e., remote copy center, main center, primary logical volume, secondary logical volume, temporarily stopping the transmission of the data of the plurality of primary volumes to the secondary storage system, paired state and suspended state are transparently found in U.S. Patent 6,754,792 with obvious wording variation. Thus, the broadly claims are overcome by U.S. Patent 6,754,792.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iskiyan et al. (US PAT. 5,962,155 hereinafter Iskiyan) in view of Crockett et al. (US PAT. 6,578,120 hereinafter Crockett).

Regarding claim 2, Iskiyan discloses a storage system duplication method for copying data from a plurality of primary volumes, i.e., DASD D, E and F (532, 534 and 536, figure 5) defined in a first storage system (503, figure 5) to a secondary storage system (504, figure 5) (col. 11 lines 9-17), comprising step of transmitting the data from the plurality of primary volumes to the secondary storage system via the communication link (550, figure 5), the plurality

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of primary volumes including first and second primary volumes, i.e., volume 532 and volume 534, the first primary volume being assigned to first paired volumes, i.e., duplex pairs DASDs 532 and 542, the second primary volume being assigned to second paired volumes, i.e., duplex pairs DASDs, 534 and 544 (col. 11 lines 22-27), temporarily stopping the transmission of the data of the plurality of primary volumes to the second storage system if a transmission problem is detected for the first paired volumes, wherein the first and second paired volumes are placed in a suspend state, (figures 6 and 7, and col. 11 line 46 through col. 12 line 41), start transmitting the data from the second primary volume to the secondary storage system, and thereafter, transmitting the data from the first primary volume to the secondary storage system (col. 6 lines 25-67 and col. 11 line 46 through col. 12 line 41). Iskiyan differs from the claimed invention in not specifically teaches the step of creating replications of the data related to the first and second paired volumes within a target volume that is provided in the secondary storage system, and suspending said target volume. However, Crockett teaches in the a data duplication system (figure 1) comprising a primary storage (4, figure 1) and remote secondary storage (6, figure 1) and (col. 6 lines 35-46 and col. 7 lines 29-50), wherein the data is copied from the primary storage to the secondary storage under volume-to-volume directly (col. 7 line 61 through col. 8 line 5 and col. 9 line 12 through col. 10 line 18), in addition, Crockett teaches when a fault is detected, the copying operation is suspended, and creating bit map and time stamp corresponding to the volume in both primary and the secondary storage, resume establish the copying operation based on the replication information in the bit map and time stamp record (col. 10 line 18 through col. 12 line 5). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the storage system duplication of Iskiyan in

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having a step of creating replications of the data related to the first and second paired volumes within a target volume that is provided in the secondary storage system, and suspending said target volume, as per teaching by the data duplication system of Crockett, because is assuring consistency between a primary storage system and the secondary storage system.

Regarding claims 3, the limitation of the claim are rejected as the same reasons set forth in claim 2.

Regarding claims 4-5, Crockett discloses the system wherein the plurality of target volumes hold data corresponding to the data stored in the plurality of secondary logical volumes at a time of suspending the plurality of primary volumes and secondary volumes, and the plurality of target volumes hold data mirroring the data stored in the plurality of secondary logical volumes at a time of suspending the plurality of primary volumes and secondary volume (col. 10 line 19 through col. 12 line 5).

Regarding claim 6, Iskiyan discloses the system wherein the plurality of primary logical volumes includes a first logical volume group, the plurality of secondary logical volumes includes a second logical volume group having a replication of the first logical volume group, and wherein the copy-source storage control unit, i.e., storage controller (540, figure 5), controls paired states of all logical volumes within said first logical volume group and the second logical volume group to transited into suspended states when the copy-source storage control unit detects a data transmission problem (col. 11 lines 22-27 and col. 11 line 46 through col. 12 line 41).

Regarding claims 7-8, the limitations of the claims are rejected as the same reasons set forth in claim 2

Response to Arguments

7. Applicant's arguments with respect to claims 2-8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nagashima et al. (US PAT. 5,701,436) discloses information processing apparatus including synchronous storage having backup registers for storing the latest sets of information to enable state restoration after interruption (abstract).

Milillo et al. (US PAT. 6,499,112) discloses automatic stand alone recovery for peer to peer remote copy operations (abstract).

West et al. (US PAT. 6,088,815) discloses automatic data recovery for a duplex pair (abstract).

Ashton et al. (US PAT. 6,732,244) discloses instant virtual copy technique with expedited creation of backup dataset inventory from source dataset inventory (col. 2 line 23 through col. 3 line 16).

Nagasawa et al. (US PAT. 6,684,306) discloses data backup in presence of pending hazard (abstract).

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Yanai et al. (US PAT. 6,173,377) discloses remote data mirroring comprising two data storage system are interconnected by a data link for remote mirroring of data (col. 2 line 32 through col. 6 line 11).

Ofek et al. (US PAT. 6,108,748) discloses system and method for on-line, real time, data migration (abstract).

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zhuo H Li whose telephone number is 571-272-4183. The examiner can normally be reached on M-F 9:00am - 6:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zhuo H. Li



Patent Examiner
Art Unit 2186



MATTHEW D. ANDERSON
PRIMARY EXAMINER